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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/286,418 04/06/99 KIFUKU

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SUGHRUE MION ZINN MACPEAK & SEAS  
2100 PENNSYLVANIA N W  
WASHINGTON DC 20037

EXAMINER

BROADHEAD, B

ART UNIT

PAPER NUMBER

3661

DATE MAILED: 08/16/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.

09/286,418

Applicant(s)

Takayuki Kifuku

Examiner

Brian J. Broadhead

Art Unit

3661

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 June 1999.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,9,10 and 18 is/are rejected.
- 7) ☒ Claim(s) 2,4-8,11-17,19 and 20 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 April 1999 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Drawings***

1. The drawings are objected to because in figure 1 reference number "1" is unclear. Correction is required.

***Claim Objections***

2. Claims 1, 7, 15, 16, and 17 are objected to because of the following informalities: The examiner would appreciate it if separate "means" are indented and given their own paragraph within the claims. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3, 9, 10, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Agarwal et al., 4527653.

As per claim 1, Agarwal et al. discloses a steering system comprising means of computing an estimated value of the static friction of the steering system and means for compensating for the friction based on this estimated value of static friction on line 55, on column 1 through line 12, on column 2.

As per claim 3, Agarwal et al. discloses the static friction is estimated by extracting the edge of the steering angular velocity on lines 19-22, on column 3.

As per claim 9, Agarwal et al. discloses the static friction compensation having a term proportional to the static friction estimated value is computed and the static friction of the steering system is compensated by the static friction compensation on lines 36-40, on column 6.

As per claim 10, Agarwal et al. discloses the gain of the positive feedback is set such that the static friction estimated value and the motor output torque become almost equal to each other on line 65, on column 8, through line 1, on column 9.

As per claim 18, Agarwal et al. discloses the dynamic friction or inertia of the steering system is compensated based on the angular velocity or angular acceleration of the motor or steering on lines 27-28, on column 8.

#### ***Allowable Subject Matter***

5. Claims 2, 4 through 8, 11 through 17, 19, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not disclose static friction being estimated by extracting the edge of the steering force detection or motor current; static friction compensating with a term for compensating for the nonlinearity of the motor or a motor reduction gear; and wherein a term for compensating for the dynamic friction and static friction are weighed so that one of them is used.

#### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Shimizu, 4688655, discloses an electric power steering system for vehicles.
8. Shimizu, 4681181, discloses an electric power steering system for vehicles.
9. Shimizu, 4771843, discloses a motor-operated power steering apparatus.
10. Shimizu, 4771845, discloses a motor-driven power steering system and method of controlling same.
11. Shimizu, 4629952, discloses a driving control method and circuit for electromagnetic servo devices.
12. Abel, 3870103, discloses an electromagnetic instrument tapping device.
13. Delorean, 4391340, discloses a dither assisted steering.
14. Goor, 4761595, discloses a motion control system having adaptive feedforward path tracking.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Broadhead whose telephone number is 703-308-9033. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William A. Cuchlinski can be reached on 703-308-3873. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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Art Unit: 3661

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BJB  
August 14, 2000

*Jacques Louis Jacques*  
JACQUES H. LOUIS-JACQUES  
PRIMARY EXAMINER